We claim:

1. A method of assembling an exciter assembly for a compaction machine, the method comprising:

(A) mounting a torque transfer element and a bearing on an exciter shaft;

(B) mounting a fixed eccentric weight on said exciter shaft;

(C) mounting first and second free swinging eccentric weights on said exciter shaft adjacent respective ends of said fixed eccentric weight so as to be rotatable a limited amount relative to said exciter shaft;

(D) restraining said first and second free swinging eccentric weights from substantial axial movement along said exciter shaft solely by said first and second free swinging eccentric weights being sandwiched between said respective ends of said fixed eccentric weight and operative components of said exciter assembly,

wherein all of the mounting steps are performed without the use of any mounting hardware.

2. The method as recited in claim 1, wherein at least one of the mounting steps comprise pressing the associated component onto said exciter shaft.

3. The method as recited in claim 1, wherein the step of mounting said fixed eccentric weight to said exciter shaft comprises forming said fixed eccentric weight integrally with said exciter shaft.

4. The method as recited in claim 1, further comprising coupling a motor having a rotary output shaft to said exciter shaft such that said rotary output shaft is co-axial with said exciter shaft.

5. The method as recited in claim 4, wherein said rotary output shaft is splined directly to said exciter shaft.

6. The method as recited in claim 1, wherein each of said operative components comprises one of said bearing and said torque transfer element.

7. A method of assembling an exciter assembly for a compaction machine, the method comprising:

(A) providing a fixed eccentric weight that is formed integrally with an exciter shaft;

(B) mounting a torque transfer element and a bearing on said exciter shaft by pressing said torque transfer element and said bearing onto said exciter shaft;

(C) sliding first and second free swinging eccentric weights onto said exciter shaft adjacent respective ends of said fixed eccentric weight so as to be rotatable a limited amount relative to said exciter shaft;

(D) restraining said first and second free swinging eccentric weights from substantial axial movement along said exciter shaft solely by said first and second free swinging eccentric weights being sandwiched between said respective ends of said fixed eccentric weight and operative components of said exciter assembly, whereby

said fixed eccentric, said torque transfer element, said bearing, and said first and second free swinging eccentric weights are all held on said exciter shaft without the use of any mounting hardware.

8. The method as recited in claim 7, further comprising coupling a motor having a rotary output shaft to said exciter shaft such that said rotary output shaft is co-axial with said exciter shaft.

9. The method as recited in claim 8, wherein said rotary output shaft is splined directly to said exciter shaft.

10. The method as recited in claim 7, wherein each of said operative components comprises one of said bearing and said torque transfer element.

11. A method comprising:

(A) providing an exciter shaft having a fixed eccentric weight formed thereon; then

(B) sliding first and second free swinging eccentric weights onto said exciter shaft from first and second ends thereof and positioning said first and second free swinging eccentric weights relative to said fixed eccentric weight so that said first and second free swinging eccentric weights are each rotatable a limited amount relative to said exciter shaft;

(C) sliding a torque transfer element onto said first end of said exciter shaft and fixing said torque transfer element to said exciter shaft, without using any mounting hardware, at a location in which said first free swinging eccentric weight is restrained from substantial axial movement along said exciter shaft solely by said first free swinging weight being sandwiched between a first end of said fixed eccentric weight and said torque transfer element;

(D) sliding a bearing onto said second end of said exciter shaft and fixing said bearing to said exciter shaft, without using any mounting hardware, at a location in which said second free swinging eccentric weight is restrained from substantial axial movement along said exciter shaft solely by said second free swinging weight being sandwiched between a second end of said fixed eccentric weight and said bearing.

12. The method as recited in claim 11, further comprising:

inserting said exciter assembly axially into an opening in an exciter housing and mounting said exciter assembly in said exciter housing; and

mounting said exciter assembly on a trench roller in operative communication with a rotatable drum assembly that supports said trench roller on a surface to be compacted.

13. The method as recited in claim 12, wherein said exciter shaft is a first exciter shaft, said fixed eccentric weight is a first fixed eccentric weight, said bearing is a first bearing, said opening in said exciter housing is a first opening, and said torque transfer element is a first torque transfer element, and further comprising

assembling a second exciter assembly by

providing a second exciter shaft having a second fixed eccentric weight formed thereon; then

sliding third and fourth free swinging eccentric weights onto said second exciter shaft from first and second ends thereof and positioning said third and fourth free swinging eccentric weights relative to said second fixed eccentric weight so that said third and fourth free swinging eccentric weights are each rotatable a limited amount relative to said second exciter shaft;

sliding a second torque transfer element onto said first end of said second exciter shaft and fixing said second torque transfer element to said second exciter shaft, without using any mounting hardware, at a location in which said third free swinging eccentric weight is restrained from substantial axial movement along said second exciter shaft solely by said third free swinging weight being sandwiched between a first end of said second fixed eccentric weight and said second torque transfer element;

sliding a second bearing onto said second end of said second exciter shaft and fixing said second bearing to said second

exciter shaft, without using any mounting hardware, at a location in which said fourth free swinging eccentric weight is restrained from substantial axial movement along said second exciter shaft solely by said fourth free swinging eccentric weight being sandwiched between a second end of said second fixed eccentric weight and said second bearing; and

inserting said second exciter assembly axially into a second opening in said exciter housing and mounting said second exciter assembly in said exciter housing at a location in which said first and second torque transfer elements are in mating contact with one another.

14. The method as recited in claim 12, wherein the inserting step comprises inserting the exciter assembly into an exciter housing that is formed integrally with an axle housing of said trench roller.

15. The method as recited in claim 11, further comprising coupling an output shaft of a motor to said exciter shaft such that said motor output shaft extends coaxially with said exciter shaft.

16. The method as recited in claim 11, wherein the fixing steps comprising pressing said torque transfer element and said bearing onto said exciter shaft.